REMARKS

Claims 1-36 are pending in this application, of which claims 1-2 and 7-8 have been amended. Claims 35-36 are newly added.

Claims 1-12 and 25-30 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent 5,099,343 to Margerum et al. (hereinafter "**Margerum et al.**") in view of JP 04-131893 to Shioji (hereinafter "**Shioji**") and JP 53-097457 to Sumita (hereinafter "**Sumita**").

Applicants respectfully traverse this rejection.

Margerum et al. discloses a high contrast display in which a polymer dispersed liquid crystal (PDLC) display panel is illuminated through opposite edges thereof. Light is scattered out of the front of the panel from non-activated areas of the PDLC in which the refractive indices of the liquid crystal and polymer matrix materials are mismatched. For a direct view transmission mode display, the rear of the panel is blackened so that activated areas of the PDLC in which the refractive indices of the materials are matched transmit edge-illuminated and ambient light and appear black. For a reflection mode display usable in combination with projection optics, the rear of the panel is provided with a mirror surface, and ambient light is prevented from reaching the panel.

The Examiner has admitted that **Margerum et al.** fails to disclose either a wiring electrode formed across the surrounding electrode and a gap provided between the wiring electrode and the surrounding electrode in order to selectively apply voltage to the pattern electrode, or a sealing part at an outer peripheral part of a display area, as claimed in the present invention, but has cited **Shioji** for teaching the gap and **Sumita** for teaching the sealing part.

Margerum et al. does not utilize a wiring electrode formed across the surrounding electrode because only electrode layers 18 and 20 above and below "ON"-segments 24, 26 and "OFF"-segment 22 are shown in FIG. 3, with no differentiation between "wiring electrodes", "surrounding electrodes", or "pattern electrodes", as in the present invention. Thus, there would be no motivation to combine the teachings of **Shioji** to provide such a gap in **Margerum et al.** because **Margerum et al.** functions satisfactorily without any gap between "ON"-segments 24, 26 (corresponding to the surrounding electrode) and "OFF"-segment 22 (corresponding to the pattern electrode).

It should be noted that the electrode in **Shoiji** which corresponds to the counter electrode of the present invention is separated into the first common electrode 21 and the second common electrode 22, as described in Fig. 3 thereof. Further, the second common electrode 22 is opposed to the connecting region 13, which corresponds to the wiring electrode of the present invention, and the liquid crystal layer in this region is controlled with these electrodes.

On the other hand, in claims 1 and 2 of the instant application, the counter electrode is "provided over the entire area of said display area to face said signal electrode", and the counter electrode is a completely solid single body, without any notches, and is not divided, as described in page 12, lines 25-26 of the specification of the instant application and as shown in Figs. 2 and 4. The reason why such a construction can be adopted is described in page 15, lines 23-27 of the specification of the instant application. Such a simple form of the electrode is advantageous for fabrication.

Claims 7 and 8 nave been amended to recite only a convex lens, which is not disclosed by **Margerum et al.** Furthermore, none of the cited references teaches, mentions or suggests a structure

for installing the LCD device in a concave, as recited in claims 27-30.

Accordingly, claim 1 has been amended to recite this distinction, and the 35 USC §103(a) rejection should be withdrawn.

Claims 19-22 and 31-34 stand rejected under 35 U.S.C. §103(a) as unpatentable over **Margerum et al.** in view of **Shioji**, **Sumita** and JP 64-003631 to Kinoshita (hereinafter "**Kinoshita**").

Applicants respectfully traverse this rejection.

Kinoshita has been cited for teaching a light intensity change means but fails to provide motivation to provide a gap between wiring electrodes and a surrounding electrode, as recited in claim 1, from which these claims depend.

However, **Kinoshita** discloses turning on or off the EL backlight 2 by controlling the power source 3 with the illumination control means 41 in the control circuit 4 according to signal from the optical sensor 5 detecting the quantity of ambient light, but fails to disclose controlling an intensity of transmitting light with a liquid crystal shutter, as recited in claims 21 and 22 of the instant application.

Thus, the 35 USC §103(a) rejection should be withdrawn.

Claims 13-18 stand rejected under 35 U.S.C. §103(a) as unpatentable over **Margerum et al.** in view of **Shioji**, and **Sumita** and further in view **Honda et al.**

Applicants respectfully traverse this rejection.

In an interview conducted with the Examiner on October 7, 2002, the Examiner admitted that

if an English translation of the PCT application has been received in the U.S.P.T.O., the international filing date of the instant application, namely, June 23, 2000 could be used to remove **Honda et al.** as a reference, where **Honda et al.** has a U.S. filing date of December 6, 2000. Such an English translation of the instant application was filed with the PCT transmittal in the U.S.P.T.O. on December 20, 2001.

Thus, the 35 USC §103(a) rejection of claims 13-18 is improper and should be withdrawn.

Claims 23 and 24 stand rejected under 35 U.S.C. §103(a) as unpatentable over **Margerum et al.** in view of **Shioji**, **Sumita** and further in view of U.S. Patent 5,877,835 to Dunn et al. (hereinafter "**Dunn et al.**").

Applicants respectfully traverse this rejection.

Dunn et al. has been cited for teaching an ultraviolet cutting layer provided at least on one of outer surfaces of said first and second substrates of said liquid crystal display panel but, like the other cited references, fails to provide the motivation to supply a gap between wiring electrodes and a surrounding electrode, as recited in claim 1, from which these claims depend.

Thus, the 35 USC §103(a) rejection should be withdrawn.

In view of the aforementioned amendments and accompanying remarks, claims 1-36, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "**Version with markings to show changes made**."

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Version with markings to show changes made
Substitute Abstract of the Disclosure

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VERSION WITH MARKINGS TO SHOW CHANGES MADE 09/926,803

IN THE SPECIFICATION:

Please replace the text beginning at page 1, line 5, with the following rewritten text:

[TECHNICAL FIELD] BACKGROUND OF THE INVENTION

1. Field of the Invention

Please replace the text beginning at page 1, line 15 with the following rewritten text:

[BACKGROUND TECHNOLOGY] 2. Description of the Related Art

Please replace the paragraph beginning at page 3, line 5, with the following rewritten paragraph:

Furthermore, when the environment where the camera is used is dark, the display of the target pattern or the like on the liquid crystal display panel [can not] cannot be viewed. If a light source part is therefore disposed on the first substrate side which is opposite to the visible side for illumination, the light from the light source part becomes noise to light from a photographing lens because light from a subject is incident through the photographing lens which is provided on the first substrate side, presenting a problem that the subject becomes [hard] difficult to be recognized by the observer.

Please replace the paragraph beginning at page 3, line 20, with the following rewritten paragraph:

[DISCLOSURE] SUMMARY OF THE INVENTION

A liquid crystal display device according to the present invention is a liquid crystal display device including a liquid crystal display panel in which a first substrate formed with a signal electrode and a second substrate formed with a counter electrode formed on one surface, respectively, are bonded together, with the signal electrode and the counter electrode opposed to each other, with a fixed gap therebetween provided by interposing a sealing part at an outer peripheral part of a display area, and a liquid crystal layer is provided in the gap, and is characterized by being structured as follows in order to achieve the above-described objects.

Please replace the paragraph beginning at page 4, line 3, with the following rewritten paragraph:

The signal electrode is composed of a surrounding electrode formed over almost the [whole] entire area of the display area, a pattern electrode isolatedly formed within the surrounding electrode, and a wiring electrode formed across the surrounding electrode with a gap provided between the wiring electrode and the surrounding electrode in order to selectively apply voltage to the pattern electrode.

Please replace the paragraph beginning at page 4, line 9, with the following rewritten paragraph:

Further, the counter electrode is provided over the [whole] entire area of the display area to face the signal electrode.

Please replace the text beginning at page 10, line 12, with the following rewritten text:

[BRIEF DESCRIPTION OF DRAWINGS] BRIEF DESCRIPTION OF THE DRAWINGS

Please replace the paragraphs beginning at page 11, line 22, through page 12, line 1, with the following rewritten paragraphs:

[BEST MODE FOR CARRYING OUT THE INVENTION] DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Hereinafter, [the best mode to carry out] the present invention will be explained with reference to the accompanying drawings.

First embodiment: FIG. 1 to [FIG. 10] FIG. 9

First, the first embodiment of a liquid crystal display device according to the invention is explained with reference to FIG. 1 to [FIG. 10] FIG 9.

Please replace the paragraph beginning at page 12, line 11, with the following rewritten paragraph:

In a liquid crystal display panel 6, as shown in FIG. 1 and FIG. 2, a first substrate 1 formed with a signal electrode 20 and a second substrate 2 formed with a counter electrode 21 on one surface, respectively, are coupled together, with the signal electrode 20 and the counter electrode 21 opposed to each other, with a fixed gap therebetween provided by interposing a sealing part 3 at the outer peripheral part of a display area, and the gap is filled with a liquid crystal layer 18.

Please replace the paragraph beginning at page 13, line 14, with the following rewritten paragraph:

The three target electrodes 5a, 5b and 5c are connected to the respective connecting electrodes 12, 13 and 14 by the wiring electrodes 8a, 8b, and 8c crossing the surrounding electrode 11 respectively, and the surrounding electrode 11, is connected to the connecting electrode 15 for the surrounding electrode by a surrounding electrode wiring electrode 16.

Please replace the paragraph beginning at page 14, line 4, with the following rewritten paragraph:

To oppose the first substrate 1 and the second substrate 2 with the fixed gap provided therebetween, [not shown] spacers, not shown, made of plastic are interposed in the gap, and the substrates are coupled together as shown in FIG. 2 by the sealing part 3, which is composed of a

transparent sealing material provided at the outer peripheral part of the display area, as clearly shown in FIG. 4.

Please replace the paragraph beginning at page 14, line 14, with the following rewritten paragraph:

[An] A closing part 25 is provided at a part of the sealing part 3, and liquid crystal is introduced through this closing part 25 and closed with a closing material 26, thereby filling the gap between the first substrate 1 and the second substrate 2 with the liquid crystal layer 18.

Please replace the paragraph beginning at page 15, line 23, with the following rewritten paragraph:

In this case, parts of the liquid crystal layer 18 facing the wiring electrodes 8a, 8b and 8c, and the gaps between [they] them and the surrounding electrode 11 are also brought into a scattering state, but they are hardly recognized in the state because widths of the gap G1 and the wiring electrodes 8a, 8b, and 8c are small, 3 micrometers (μm), respectively.

Please replace the paragraph beginning at page 17, line 4, with the following rewritten paragraph:

Further, when light from the subject is dim, it is difficult for an observer to recognize the target pattern 9. Therefore, a light source part (side light) 27 composed of a light [emitted] emitting

diode (LED) device for emitting red light is provided outside the periphery of the liquid crystal display panel 6 (at the right-hand side in this embodiment).

IN THE CLAIMS:

Please amend the claims as follows:

1. (Twice Amended) A liquid crystal display device comprising a liquid crystal display panel in which a first substrate formed with a signal electrode and a second substrate formed with a counter electrode on one surface, respectively, are coupled together, with said signal electrode and said counter electrode opposed to each other, with a fixed gap provided therebetween [provided] by interposing a sealing part at an outer peripheral part of a display area, and a liquid crystal layer is provided in the gap, wherein

said signal electrode is composed of a surrounding electrode formed as a single body over almost the [whole] entire area of said display area, a pattern electrode isolatedly formed within said surrounding electrode, and a wiring electrode formed across said surrounding electrode with a gap provided between said wiring electrode and said surrounding electrode in order to selectively apply voltage to said pattern electrode,

said counter electrode is provided over the [whole] entire area of said display area to face said signal electrode,

said first substrate, said second substrate, said signal electrode and said counter electrode are all transparent,

said liquid crystal layer is a scattering type liquid crystal layer which changes in transmittance

and scattering rate depending on existence or absence of application of voltage by means of said signal electrode and said counter electrode, in which transparency increases in a part to which voltage is applied, and

a light source means which emits linearly polarized light is disposed outside a peripheral part of said liquid crystal display panel, and at least a part of said sealing part facing the light source means has a light transmitting property to allow linearly polarized light emitted from said light source means to pass through said sealing part and enter said liquid crystal layer.

2. (Twice Amended) A liquid crystal display device comprising a liquid crystal display panel in which a first substrate formed with a signal electrode and a second substrate formed with a counter electrode on one surface, respectively, are coupled together, with said signal electrode and said counter electrode opposed to each other, with a fixed gap provided therebetween [provided] by interposing a sealing part at an outer peripheral part of a display area, and a liquid crystal layer is provided in the gap, wherein

said signal electrode is composed of a pattern electrode isolatedly formed within said display area, and a wiring electrode formed across said display area in order to selectively apply voltage to said pattern electrode,

said counter electrode is provided in an area to face said pattern electrode, said first substrate, said second substrate, said signal electrode and said counter electrode are all transparent,

said liquid crystal layer is a scattering type liquid crystal layer which changes in transmittance and scattering rate depending on existence or absence of application of voltage by

means of said signal electrode and said counter electrode, in which a scattering degree increases in a part to which voltage is applied, and

a light source means which emits linearly polarized light is disposed outside a peripheral part of said liquid crystal display panel, and at least a part of said sealing part facing the light source means has a light transmitting property to allow linearly polarized light emitted from said light source means to pass through said sealing part and enter said liquid crystal layer.

7. (Twice Amended) A liquid crystal display device according to claim 5, wherein

an optical means composed of a convex lens [or a diffuser] is provided [betweensaid] between said light source part of said light source means and said polarization separating device.

8. (Twice Amended) A liquid crystal display device according to claim 6, wherein

an optical means composed of a convex lens [or a diffuser] is provided between said light source part of said light source means and said polarization separating device.

ABSTRACT OF THE DISCLOSURE:

A liquid crystal display panel in which a signal electrode provided on a first substrate [(1)], a counter electrode provided on a second substrate [(2)], and a liquid crystal layer [(18)] between the substrates, and which carries out display without polarizers by changing the degree of transmission and scattering by means of a voltage applied to a pixel part. A light source part [(27)] is provided along the periphery of both substrates [(1, 2)], and a polarization separating device [(30)] is provided between the liquid crystal panel and the light source part [(27)].

ABSTRACT OF THE DISCLOSURE:

A liquid crystal display panel in which a signal electrode provided on a first substrate, a counter electrode provided on a second substrate, and a liquid crystal layer between the substrates, and which carries out display without polarizers by changing the degree of transmission and scattering by means of a voltage applied to a pixel part. A light source part is provided along the periphery of both substrates, and a polarization separating device is provided between the liquid crystal panel and the light source part.